

Service Manual

ATEC[®] Breast Biopsy and Excision System

ATEC Pearl[™]
ATEC Sapphire[™]
ATEC Emerald[™]

120V, 60Hz Model



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As used throughout this manual, the term “Suros” means Suros Surgical Systems, Inc. and the terms “ATEC Pearl, ATEC Sapphire and ATEC Emerald breast biopsy system” means the ATEC Pearl, ATEC Sapphire and ATEC Emerald Breast Biopsy and Excision System consoles and all available components, as more fully described in the Components section of this manual (unless the context dictates otherwise). The term “disposable” is also interchangeably used with the term “handpiece.”

Suros Surgical Systems, Inc.
A Hologic Company
6100 Technology Center Dr.
Indianapolis, IN 46278
U.S.A.

Customer Service: (877) 887-8767
Quality/Technical Service (888) 355-7876

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SECTION 1: INTRODUCTION

1.1 Scope of Manual

This manual is written for medical technicians who will be responsible for maintaining ATEC biopsy systems manufactured by Suros, including ATEC *Pearl*, ATEC *Sapphire* and ATEC *Emerald* systems. It is extremely important that the technician read and thoroughly understand the contents of this manual and follows the instructions contained herein.

1.2 Warranty Policy

All capital equipment purchased has a 1-year warranty included and comes with after business hours pager support at (800) 780-9303.

- **Under Warranty/Extended Service Plan** – Time and material for repair, preventive maintenance and upgrades, as well as shipping costs for returned capital equipment are the responsibility of **Suros**.
- **Out of Warranty** – Time and material for repair, preventive maintenance and upgrades, as well as shipping costs for returned capital equipment are the responsibility of the **Customer**. A Suros Sales Representative will contact the customer with an estimated cost of the repair and quote an Extended Service Protection Plan prior to any repairs being completed on out of warranty equipment.

1.3 Extended Service

Customers are requested to contact Suros Customer Service or a Sales Representative for the purchase of an Extended Service Protection Plan.

1.4 Assistance

Suros seeks to provide technical assistance as efficiently and effectively as possible. Please contact Suros Customer Service at 877-887-8767 if assistance is needed.

1.5 Training

Suros has developed a Biomedical Training Course to teach the content of this manual. The course includes “hands-on” demonstrations of basic maintenance, service and trouble-shooting.

1.6 Precautions, Warnings and Cautions

Note: Follow all warnings and instructions as stated in this manual and retain for future reference.

Precautions

Please read all contents of the Operator's Manual for your ATEC Pearl, ATEC Sapphire and ATEC Emerald breast biopsy system prior to installation and operation. Follow all warnings and instructions as stated in this manual and retain for future reference. Physicians should inform patients about all potential risks and adverse events discussed in this manual with respect to the use of the ATEC Pearl, ATEC Sapphire and ATEC Emerald breast biopsy systems for an incisional breast biopsy.

- Should any object or liquid fall into the ATEC Pearl, ATEC Sapphire or ATEC Emerald console, unplug the console and have it checked by qualified personnel before operating it any further.
- Unplug the console from the electrical outlet if it is not to be used for several days or an extended period of time as well as prior to servicing.
- Allow adequate air circulation around the console to prevent internal heat build-up. Do not place the console on surfaces or near materials that may block the ventilation openings.
- Do not install the console in a location near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- To keep the console looking new, periodically clean it with a soft cloth. Stubborn stains may be removed with a cloth lightly dampened with a mild detergent solution. Never use strong solvents or abrasive cleansers since these will damage the console exterior casing. Do not allow liquid to contact any electrical areas of the console (i.e. on/off power switch, power cord connection). The console should only be cleaned after the power cord is disconnected from the power outlet and the console.
- Do not place the console on an unstable surface. The console may fall, causing serious injury and damage to the appliance. Quick stops, excessive force and uneven surfaces may cause the console to overturn.

Warnings

- **THE COMPONENTS OF THE ATEC PEARL, ATEC SAPPHIRE and ATEC EMERALD ARE FOR USE ONLY BY QUALIFIED MEDICAL PERSONNEL TRAINED IN THEIR USE AND APPLICATION.** Qualified medical personnel should perform a test of the ATEC Pearl, ATEC Sapphire and ATEC Emerald prior to each procedure or prior to each time a new single patient use disposable is attached to the console.
- To prevent fire or shock hazard, do not expose the console to rain or moisture.
- To prevent shock hazard, do not use the console's polarized plug with a receptacle or other outlet unless the blades can be fully inserted to prevent blade exposure.

- Do not use the console's polarized plug with an extension cord.
- Use only disposables that are manufactured by Suros. Use of any other disposables may result in damage to the console and unintended injury to the patient or unacceptable clinical results and shall void any warranty provided by Suros herein.
- Only Suros approved accessory equipment and components shall be used with the ATEC *Pearl*, ATEC *Sapphire* and ATEC *Emerald*. Use of the ATEC *Pearl*, ATEC *Sapphire* and ATEC *Emerald* with unauthorized accessory equipment and components shall void any warranty provided by Suros herein.
- All disposables associated with the ATEC *Pearl*, ATEC *Sapphire* and ATEC *Emerald* are intended for single patient use and are not intended for resterilization and subsequent reuse. Dispose of all single patient use instruments after opening.
- **Do Not Resterilize any ATEC breast biopsy system single patient use instrument or accessory.** Resterilization may compromise the integrity and mechanical function of the instrument or accessory, which may result in unintended injury to the patient or unacceptable clinical results.
- DANGER – There is a risk of explosion if the ATEC *Pearl*, ATEC *Sapphire* or ATEC *Emerald* is used in the presence of flammable anesthetics or other explosive gases.
- The ATEC *Pearl*, ATEC *Sapphire* and ATEC *Emerald* consoles should only be opened or serviced by Suros or qualified personnel who have been trained and certified by Suros.

Cautions

- The ATEC *Pearl* is not intended for use in MRI suites or with MRI-guided procedures.
- The ATEC *Sapphire* and ATEC *Emerald* are not intended for use in MRI suites; however are intended for use in MRI-guided procedures.
- Instruments or devices which come into contact with bodily fluids may require special disposal handling to prevent biological contamination.
- Grounding reliability can only be achieved when the console is connected to an equivalent receptacle marked "Hospital Grade."
- The console should not touch other electrical equipment during use.
- The console can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to other devices in the vicinity. However, there is no guarantee that interference will not occur in a particular installation. If the console does cause harmful interference to other devices, which can be determined by turning the console off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
 - o Re-orient or relocate the receiving device.
 - o Increase the separation between the equipment.

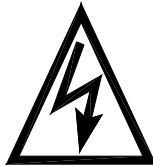
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- o Connect the console to an outlet on a circuit different from that to which the other device(s) are connected.
- o Consult Suros for technical help.
- Damage to the power cord may cause a fire or shock hazard. When unplugging the power cord, please hold by the plug and remove it carefully. Do not damage or modify the console power cord.
- When the console is not being used, turn off all power switches and place the console in a location where it will not be damaged.
- When unpacking your ATEC *Pearl*, ATEC *Sapphire* and ATEC *Emerald* consoles, save all packaging. This will ensure that if you have to ship or return the system, you will maintain ownership of the original packing materials intended to provide secure shipping of the unit. Alternate packaging will not guarantee the protection of the console in shipping.
- Do not place the console on an unstable surface. The console may fall, causing serious injury and damage to the appliance. Quick stops, excessive force and uneven surfaces may cause the console to overturn.
- Some ATEC *Pearl*, ATEC *Sapphire* and ATEC *Emerald* consoles may include settings specific to higher altitudes. Please contact Suros Customer Service if you move your console to a different physical address.
- Consult your Suros sales representative or Suros Customer Service if you cannot correct a problem using this Operator's Manual.

Symbols



The “2” with a diagonal slash within a circle symbol is intended to alert the user that this is a single patient use device.



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated dangerous voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

SECTION 2: PRODUCT DESCRIPTION

2.1 Reference Operator's Manual

SECTION 3: GENERAL CHECKS and PREVENTIVE MAINTENANCE

3.1 General Precautions

Please read all contents of the Service Manual for your ATEC Pearl, ATEC Sapphire and ATEC Emerald prior to servicing the system. Follow all warnings and instructions as stated in this manual and retain for future reference.

3.1.1 ESD Precautions

Any time a service representative works on the equipment, the representative should work on a static protective workstation and follow appropriate precautions for handling and servicing static sensitive devices. He or she should:

- Wear a special wristband electrically connected to an ESD workstation, unless otherwise instructed, while the instrument is disassembled and reassembled.
- Handle printed circuit boards only by the edges and while properly grounded.
- Store printed circuit boards in antistatic bags.

3.2 Tools Required

- Console Cabinet Key
- 1/4" Open End Wrench
- 3/4" Socket Wrench
- 7mm Wrench
- 8mm Wrench
- 9mm Wrench
- #2 Phillips Screwdriver
- Loctite HVAC Blue Joint Compound #82480
- Loctite 222
- Loctite 242
- Loctite 2440
- Loctite 410
- Tubing Cutter
- Exacto Knife

3.3 Accessing the Console

Remove the lock cover gently with a small flat head screwdriver inserted on the side and pressing in the center of the label. Use the provided key to unlock the door lock and remove the door. When accessing the console internals, be careful not to touch power supply circuit board or microcontroller circuit board in the back of the console just below the fan. Also, be careful not to bend and kink any of the pneumatic tubing. If the pneumatic tubing gets kinked, replace it with a piece of tubing the same length.

3.4 Basic Functional Checks and Adjustments

3.4.1 Relief Regulator Pressure

Check the output pressure of the relief regulator by locating the “T” connector on the left side of the far left pressure regulator in the front of the console. Disconnect the tubing that connects the left side of the far left regulator and the middle regulator. Check the pressure at the “T” connector. It should be between 68 and 72 PSI. If it is outside of this range, readjust the relief regulator a few inches behind the far left regulator. Pull up on red locking ring and turn the knob to adjust. Be sure to first lower the pressure to 60 PSI before setting at 70 PSI so the pressure can be set with a rising adjustment.

Some consoles may have a relief regulator located on the right side of the compressor instead of on the shelf. In this case, there is a blue cap that will need to be unscrewed with a screwdriver prior to adjustment. Once adjustment is completed, be sure to screw cap back down.



Relief Regulator

3.4.2 Motor Pressure

3.4.2.1 Motor Pressure on ATEC Pearl Consoles

ATEC Pearl consoles only have one pressure to be adjusted. Using the US/STX and Cylinder Gauge Connector Assembly, check the pressure from the US/STX port by turning the console on and depressing the footswitch. If it is not between 34 and 39 PSI, adjust the regulator on the far left of the console until the gauge reads 36 PSI. Always set a pressure by increasing pressure up to the correct value as opposed to decreasing pressure down to a value. **Note:** The pressure regulator for US/STX motor pressure is in a different location in an ATEC Pearl console than an ATEC Sapphire console. Be sure to lock the regulator when finished.

3.4.2.2 Motor Pressures on ATEC *Sapphire* Consoles

There are two motor pressures on an ATEC *Sapphire* consoles. The pressure for an MRI handpiece should be checked first. Using the MRI Gauge Connector Assembly, connect a calibrated pressure gauge into the metal connection port with a red MRI label. Turn the console on and depress the console footswitch. The peak air pressure should be between 44 and 49 PSI. If it is out of this range, adjust the regulator on the far left of the console until the gauge reads 46 PSI. To adjust, the cap below the shelf will need to be pulled down and then it can be rotated. **Always set a pressure by increasing pressure up to the correct value as opposed to decreasing pressure down to a value.**

Once the MRI pressure is set, use the US/STX and Cylinder Gauge Connector Assembly to check the US/STX pressure. This pressure should be between 34 and 39 PSI. If it is outside of this range, adjust the regulator on the far right of the console until the gauge reads 36 PSI. Be sure to lock the regulator when finished.

3.4.2.3 Motor Pressure on ATEC *Emerald* Consoles

ATEC *Emerald* consoles only have one pressure to be adjusted. Using the MRI Gauge Connector Assembly, connect a calibrated pressure gauge into the metal connection port with a red MRI label. Turn the console on and depress the console footswitch. The peak air pressure should be between 44 and 49 PSI. If it is out of this range, adjust the regulator on the far left of the console until the gauge reads 46 PSI. Always set a pressure by increasing pressure up to the correct value as opposed to decreasing pressure down to a value. **Note: The pressure regulator for US/STX motor pressure is in a different location in an ATEC *Pearl* console than an ATEC *Sapphire* console.** Be sure to lock the regulator when finished.

3.4.3 Cylinder Pressure

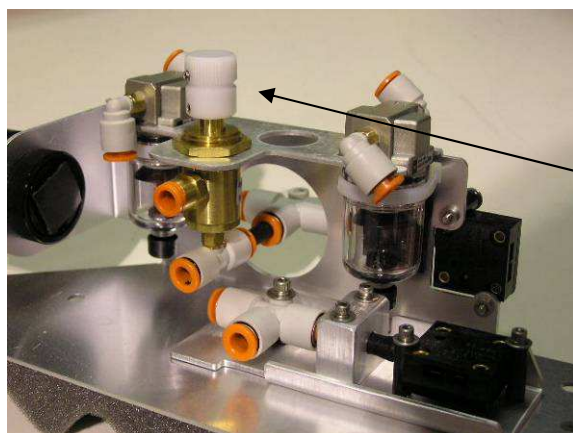
Using the US/STX and Cylinder Gauge Connector Assembly, check the pressure in the cylinder port. This is the connection port with a black circle. With the console on and the footswitch depressed, check for the peak pressure during cycling. This pressure should be between 29 and 35 PSI. If it is not, adjust the middle regulator (the right regulator in an ATEC *Pearl* console) until the pressure is 32 PSI. Always set a pressure by increasing pressure up to the correct value as opposed to decreasing pressure down to a value. Be sure to lock the regulator when finished.

3.4.4 Vacuum Level

Check the console vacuum level using a calibrated vacuum gauge. Disconnect the Vacuum Line Assembly by depressing the light gray ring on the vacuum line bulkhead fitting and pulling up on the tubing assembly. Connect the vacuum gauge to the bulkhead with a piece of ¼" tubing. Turn the console and switch to "Setup" mode. The console should reach a maximum vacuum level greater than 26.5" Hg within a time of 30 seconds. If the console doesn't reach that vacuum level, return for service.

3.4.5 Cycle Time

A disposable biopsy handpiece is required to check the cycle time of the console. An US/STX or MRI handpiece will work. Plug the handpiece into the appropriate ports on the console, turn on the console, and depress the footswitch. Measure the cycle time of the console from beginning of beep to the beginning of the next beep using a stopwatch. This time should be between 4.2–5.0 seconds. If the cycle time is outside of this range, adjust the cycle time by turning the needle valve on the right side of the shelf in the console. The needle valve has a white knob with two set screws. The lower set screw will need to be loosened to adjust the needle valve. Turn the needle valve knob clockwise to increase the cycle time; counter clockwise to decrease the cycle time. Once the cycle time is 4.6 seconds, tighten the set screw on the needle valve to lock it in place. Recheck the cycle time to ensure it did not move while locking it in place.



Needle Valve

Needle Valve

3.5 Initial Testing

Record these values prior to performing the Preventive Maintenance:

- | | |
|---|-------|
| ☐ Air Motor Pressure non-MRI | _____ |
| ☐ Air Motor Pressure MRI | _____ |
| ☐ Cylinder Pressure | _____ |
| ☐ Pressure Switch Point | _____ |
| ☐ Vacuum Switch Point | _____ |
| ☐ Total Vacuum Draw Down | _____ |
| ☐ Cycle Time | _____ |

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3.6 Preventative Maintenance

Acquire a preventative maintenance kit. Parts from the preventative maintenance kit will be used throughout this procedure. Other kits and parts may be required to replace broken parts. In these cases, the following steps will suggest the appropriate parts or kits.

SR6426-01 Preventative Maintenance Kit, ATEC Pearl / ATEC Emerald

SR6427-01 Preventative Maintenance Kit, ATEC Sapphire

3.6.1 Handpiece Connections

Inspection

Parts:

Qty	Part #	Description
N/A	N/A	N/A

Tools:

Steris Pads 1608-G4
MRI, ATEC handpiece
STX, ATEC handpiece



Console Interface, right side.

1. Inspect the quick disconnect, MRI and Motor/Cylinder fittings and the pinch valve on the right user interface panel.
2. Clean as needed with Steris pads
3. Turn the unit on, with no handpiece connected, to verify that no air is leaking through the quick disconnect fittings.
4. Connect an ATEC handpiece to the quick disconnect fittings and pinch valve. Check the functional fit with a handpiece to assure that the connection is secure.
5. Run a few biopsy cycles by depressing the footswitch and listen for leaks. Test both MRI and STX if applicable.
6. If the quick disconnect fittings leak or if there is a problem with the pinch valve, request new parts and install, and follow the necessary steps in procedure SR6607.
 - a. SR6047-01 Quick Disconnect, MRI
 - b. SR6046-01 Quick Disconnect, Motor/Cylinder
 - c. SR6045-01 Pinch Valve

3.6.2 Vacuum Line Bulkhead Fitting

Inspection



Bulkhead Fitting

1. Check the retention of the Vacuum Line Assembly (from the Preventative Maintenance Kit) in the bulkhead fitting by lightly tugging vertically with approximately 7 pounds of force (the force required to open an inside door) on the Vacuum Line Assembly.
 - a. **!!! Warning !!!** DO NOT TWIST (this can cause seal damage)
2. If the Vacuum Line Assembly slides away from the light gray retention ring more than 1/16" while tugging on Vacuum Line Assembly, then replace the Vacuum Line Bulkhead Union fitting.

Bulkhead Union Replacement

Parts:

Qty	Part #	Description
1	ASY-02016	BULKHEAD ASSEMBLY

Tools:

24mm socket wrench



Vacuum line bulkhead fitting, outside view.



Vacuum line bulkhead fitting, inside view.

1. Remove vacuum line assemblies from both top (outside console) and underside (inside console) of the vacuum line bulkhead union fitting by pressing and holding the gray ring and pulling on the tube.
2. Loosen bulkhead union fitting using a 24mm socket wrench on top side.
3. Line up the flat notch of the nut with the flat on the underside of the console.
4. Insert the bulkhead union fitting through the top of the console and thread.
5. Hand-tighten with a 24mm socket wrench.
6. Reattach the vacuum line assemblies on both top and underside to the new vacuum line bulkhead union fitting.

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3.6.3 Vacuum Line Assembly

Vacuum Line Assembly Replacement (Reference Appendix A)

Parts: From Preventative Maintenance Kit

Qty	Part #	Description
1	SR6146-02	Vacuum Line Assembly

Tools:

N/A



Vacuum line assembly inserted in bulkhead union.

1. Insert new vacuum line assembly into the bulkhead fitting.

3.6.4 Pinch Valve

Inspection



Pinch Valve

1. Operation of the pinch valve should be verified by turning the console on and switching between the five modes.
 - a. The pinch valve should be open (allowing fluid to flow through a properly routed tube) in the "Setup" and "Lavage" modes.
 - b. The pinch valve should be closed (preventing fluid flow) in the "Biopsy" and "Manually Aspirate" modes. In the "Test" mode (when the vacuum line is plugged), the valve will start closed, briefly open, and then close.
2. If the pinch valve fails, check the wire connections. If the connections are okay, then request assistance to determine if the board or the pinch valve is bad. Replace the pinch valve if necessary (see SR6607).

3.6.5 Saline/Placard Hooks

Inspection



Saline/Placard Hook

1. Verify the Saline/Placard hooks are securely attached to each side of the console.
 - a. If they are not, follow the repair steps for tightening the hooks.

Saline/Placard Hook Repair

Parts: From SR6417-01 Saline Hook Kit

Qty	Part #	Description
4	SR6218-01	Screw, 4-40x .625, FH, SS
4	SR6220-01	Nut, 4-40, Hex, SS
2	SR6073-01	Hook, Saline/Placard

Tools:

#2 Phillips screwdriver
Loctite 222

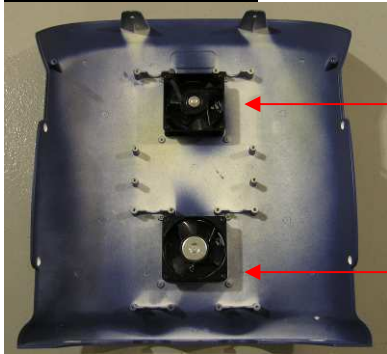
1. Apply a small drop of Loctite 222 to end of screw threads.
2. Insert screw back through hook and body panels
3. Reach hand into console with a ¼” wrench and locate screw.
4. Secure nut in wrench opening with finger.
5. Tighten screw to 8 in/lbs while holding nut with ¼” wrench.

3.6.6 Fans

Inspection

1. Apply power to the console and check to ensure both fans are rotating.
 - a. Verify bottom fan blows air into the console
 - b. Verify top fan blows air out of the console
2. If a fan is not rotating, then examine the wire connections.
3. If a fan is not rotating and the wire connections are correct, request assistance to measure the voltage the fan is receiving.
4. If the voltage supplied to a non-working fan is sufficient, replace the fan.
 - a. Ensure the air flow direction is correct (as stated above).

Fan Replacement



Top Fan

Bottom Fan

Inside location of fans.

Parts:

Qty	Part #	Description
1-2	SR6067-01	Fan, 24V DC

Tools:

Torque Wrench
7/64" bit

1. Pull the necessary number of fans from inventory.
 - a. If necessary, remove the compressor and vacuum pump. Follow the instructions for removal in the Mount Replacement step (Section 3.6.16). Replace the compressor muffler if the compressor is removed.
2. Discard the broken fan(s) and correctly position the new fan(s).
 - a. Bottom fan power connection is located in the top right hand corner.
 - b. Top fan power connection is located in the top left hand corner.
3. Reuse the 4 screws and 4 lock washers to install each fan.
4. Torque screws to 10 in/lbs.

3.6.7 Fan Guard

Inspection



Fan Guard

1. Examine the fan guards. Check fan guards for any dents that could interfere with fan operation.
2. If the fan operation can be affected, replace fan guard.

Fan Guard Replacement

Parts: From SR6419-01 Fan Guard Kit

Qty	Part #	Description
2	SR6088-01	Guard, Fan, Blue
8	SR6236-01	Screw, 6-32 x 1/4, FH

Tools:

Torque Wrench
5/64" Allen bit
Loctite 222

1. Remove old fan guard with 5/64" Allen bit.
2. Install the fan guard(s) on the back of the console.
3. Secure each fan guard using 4 screws each.
4. Apply a small drop of Loctite 222 to each screw before installing.
5. Tighten to 6 in/lbs.

3.6.8 Baseplate Bumper

Inspection



Bumper start/end and glue location.

1. Examine the baseplate bumper for damage and determine if the bumper is still firmly attached.
2. If the bumper has begun to peel away from the baseplate, it may be reattached or replaced. Follow instructions below.

Bumper Replacement

Parts: From Preventative Maintenance Kit

Qty	Part #	Description
1	SR6357-01	Bumper, Baseplate

Tools:

Loctite 410

1. Remove old edge trim and clean base plate with alcohol.
2. Stretch 78.5" of baseplate bumper around the baseplate.
3. Glue the ends of the bumper together using Loctite 410.

3.6.9 Power Cord and Cord Retainer Clamp

Inspection



Power Cord



Power Cord Retainer

1. The Power Cord should be wrapped clockwise around the Cord Management Plate starting from the bottom while not in use.
2. With the power cord disconnected from the wall, inspect the cord for kinks, knots and abrasions. Pull on power cord with moderate force to ensure clamp is retaining the power cord. Verify clamp is still tight on the power cord.
3. Check to make sure the AC Inlet is not loose. If the power cord or cord retainer clamp is damaged, replace using the instructions in the repair section.

Power Cord Replacement (Reference Appendix C)

Parts:

Qty	Part #	Description
1	SR6423-01	Power Cord – Cable Wrap 120V

Tools:

#0 Phillips driver

1. Verify that the unit has a 120V or 240V power cord.
2. Completely loosen screw on bottom of cord retainer clamp.
3. Pull power cord straight out and discard.
4. Insert new power cord and tighten cord retainer clamp screw.

Repair Retainer Clamp

Parts: From SR6420-01 Cable Clamp Kit

Qty	Part #	Description
1	SR6152-01	Clamp, Cord Retaining
2	SR6215-01	Screw, M3x10mm, BH, SH
2	SR6231-01	Washer, #4, Splitlock

Tools:

#0 Phillips screwdriver

5/64" Allen bit

Torque Wrench

1. Loosen the clamping screw on the Cord Retainer Clamp.
2. Remove the Power Cord.
3. Remove 2 Button Head Hex Screws with 5/64" Allen bit to allow damaged clamp to

come off. Be careful not to let AC Inlet come out of the hole.

4. Attach the Cord Retainer Clamp to the AC Inlet with the screw on the bottom.
5. Attach with 2, M3 screws and 2, #4 lock washers.
6. Attempt to tighten to 6 in/lbs while monitoring the clamp to ensure that it does not bend or distort. Do not tighten to the point where bending or distortion is observed.
7. Insert power cord and tighten clamping screw until the two metal tabs touch each other.

3.6.10 Caster Wheels

Inspection



Caster

Front
Retaining Pin



Buzzer

1. Visually inspect each of the four caster wheels for excessive wear or damage. The wheels should be securely attached to the console baseplate and swivel freely around the mounting bolt.
2. Verify operation of the wheel lock. When the lock is depressed, the wheel should not turn and it should not be able to swivel.
3. Examine the casters to identify any broken locking levers. If any are broken, follow the Locking Lever Repair instructions below.

Caster Repair

Parts:

Qty	Part #	Description
0-4	SR6003-01	Caster, Locking

Tools:

5/16" Allen Wrench
3/4" Socket

1. Tighten the mounting bolt with a 5/16" Allen wrench and torque to 300 in/lbs.
2. Casters are accessible through the access door and a 3/4" socket wrench may be required to aid tightening.

Note: The buzzer may need to be disconnected from its bracket to reach the back right caster. Reinstall when finished.

Locking Lever Repair

Parts:

Qty	Part #	Description
0-4	N/A	Lever, Locking, Caster

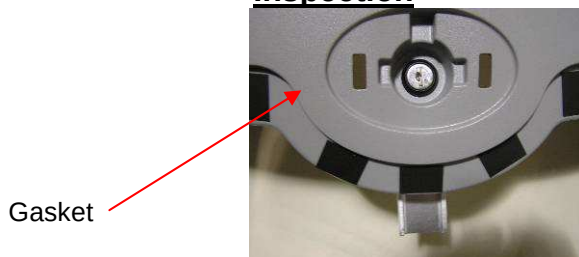
Tools:

.125" Punch

1. Using a .125" punch, carefully tap the front retaining pin out from the left to right (as looking at the caster). The pin does not have to be completely removed. Use your foot to prevent the caster from moving. **DO NOT ENGAGE THE CASTER LOCK.**
2. Remove the broken lever.
3. Obtain a replacement locking lever. Insert the new lever into the caster.
4. Carefully push the retaining pin back through the lever. Ensure the pin is centered.
5. Using the punch, ensure you can NOT push the pin back out by hand.
6. Engage the lock to lock the caster. Ensure the caster is locked both rotationally and directionally.

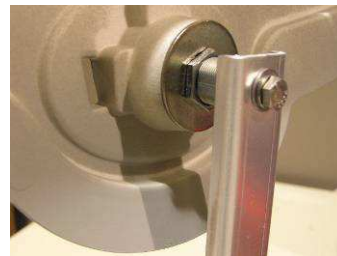
3.6.11 Door Lock and Door Lock Arm

Inspection



Gasket

Door Lock, outside.



Door Lock and Arm, inside.

1. Verify the door lock assembly is attached securely to the console.
2. In the locked position (key's teeth down), the lock arm should be completely pointed directly down.
3. In the unlocked position (key rotated counter clockwise 90°), the lock arm should point to the right.
4. If the lock assembly has loosened, tighten it using the steps below.

Door Lock Repair

Parts:

Part #	Description
N/A	N/A

Tools:

Loctite 222
Torque Wrench
7/16" Socket
7/8" Wrench
Loctite 242

1. Loosen nut far enough to expose threads near enclosure panel.
2. Apply 2-3 drops of **Loctite 242**.
3. Tighten nut with 7/8" wrench.
 - a. Caution: Do not over tighten as to distort the gasket.
4. Put the door lock in the locked position by rotating the key as far clockwise as it will turn.
5. Remove screw and place a drop of **Loctite 222** on the threads.
6. Insert screw through lock washer, flat washer, and lock arm and into door lock.

7. Ensure the two ends of "U" shaped lock arm are facing towards the front
8. Torque to 30 in/lbs with a 7/16" socket wrench.

3.6.12 Sponges Replacement

Parts: From Preventative Maintenance Kit

Qty	Part #	Description
1	SR6154-01	Sponge, Large
1	SR6154-02	Sponge, Small

Tools:

Razor Blade
Water



Small Sponge



Large Sponge

1. Remove each of the sponges. If sponge is dry and hard, dampen slightly with tap water to prevent sponge material contamination.
2. Vacuum or sweep out any remaining sponge particles.
3. Make a small 1" incision in each of the ends of the new sponges for mounting.
4. Compress each sponge and let them expand into place between bottom port of air dryer and baseplate.
 - a. SR6154-01 (large sponge) goes under the air dryer on the right. It should be positioned long-wise from the left to the right.
 - b. SR6154-02 (small sponge) goes under the air dryer on the left. It should be positioned long-wise from the front to the back.
5. The sponge's own compression should hold it in place with the additional lateral support of the vertical threaded stud coming up from the baseplate. If the threaded stud is missing, replace with a SR6247-01 10-32 x 1" SH SS Screw, SR6227-01 #10 SS Lock Washer, and SR6224-01 #10 SS Lock Nut.

3.6.13 AF10 Filter Replacement

Parts: From Preventative Maintenance Kit

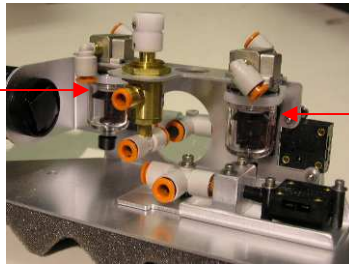
Qty	Part #	Description
1-2	SR6155-02	Air Dryer, AF10, NonAuto Drain
1-2	SR6229-01	Cable Tie, 8", Nylon

Tools:

7mm Wrench
Side Cuts
11mm Socket



AF10 w/ bowl assembled.



AF10 filter locations.

1. The AF10 air filter(s) are located on the far right side of the pneumatic shelf. The ATEC Pearl console has one AF10 filter and the ATEC Sapphire model has two AF10 filters. See photo.
2. Cut and remove the cable tie holding the filter in place.
3. Remove the filter(s) from the console.
4. Remove and retain the elbow fittings.
5. Ensure that the gasket on each of the fittings has not been damaged.
6. Install a straight fitting into the input side of a new AF10 filter. Use an 11mm socket.
7. Install elbow fitting into the other side of new AF10 filter. Use 7mm wrench.
8. Insert the cable tie through the far rectangular hole.
9. Reinstall the AF10 filter assembly into the far slot in the console. The filters have a groove under each air fitting. Inside these grooves the ports are marked IN or OUT. **When inserting the filter, the OUT port will be facing the right side of the console.** Slide the filter back into the console by aligning the grooves with the bracket on the right side of the pneumatic shelf.
10. Wrap the cable tie around the AF10 filter. Insert the cable tie through the near rectangular hole. Then insert it through the cable tie lock. Pull as tight as possible.
11. Cut and discard the excess cable tie length.
12. Repeat steps 5 - 12 for the other AF10 filter when servicing an ATEC Sapphire console, noting the following exceptions:
 - a. Install 2 elbow fittings using a 7mm wrench.
 - b. Install the AF10 assembly into the near slot in the console.

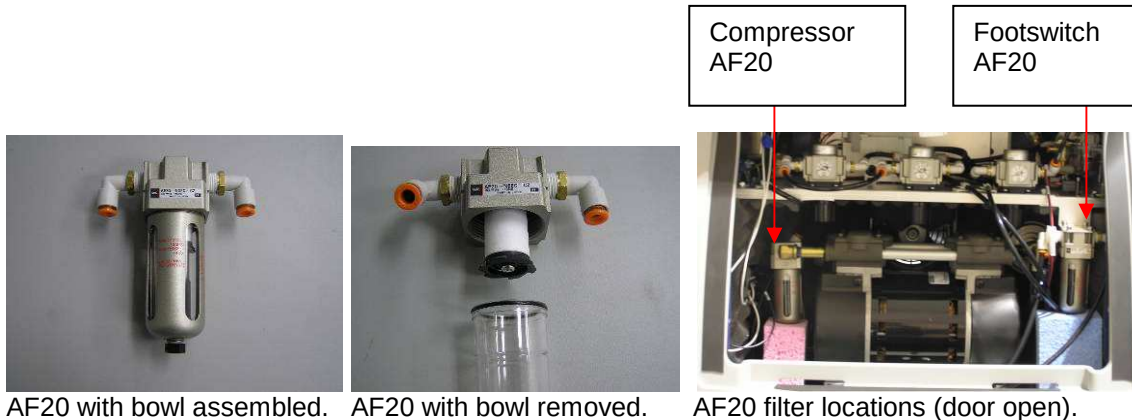
3.6.14 AF20 Filter Media and Bowl Replacement

Parts: From Preventative Maintenance Kit

Qty	Part #	Description
1-2	SR6356-01	AF20 Media
0-1	SR6375-01	O-Ring, AF20
1	SR6296-01	AF20 Filter, Bowl Assembly (Aluminum)

Tools:

Loctite 222
#2 Phillips Screwdriver
Lubricant, O-ring



1. There are two AF20 filters inside the ATEC console. The footswitch AF20 air filter is located on the right side of the pneumatic shelf and the compressor filter is located on the left side of the compressor.
2. Remove the sponges under each AF20 filter. Dampen if necessary.
3. Carefully unscrew and remove the metal cage around the air dryer bowls. Retain the cage for reassembly.
4. For the Compressor AF20: Very gently twist the nylon bowl to loosen it. Then remove and discard the bowl assembly.
5. For the Footswitch AF20: Very gently twist the nylon bowl to loosen it. Then remove and examine the bowl assembly.
 - a. **Caution: Be sure not to damage the O-ring at the top of the nylon bowl when removing. The O-ring can get damaged by the internal threads that secure the metal cage.**
 - b. If the O-ring is damaged, replace it with SR6375-01 O-ring, AF20.
 - i. Apply O-ring lubricant to the O-ring.
 - ii. Insert the O-ring into the O-ring groove on the AF20 bowl.
 - c. Examine the bowl assembly for cracks, especially by the drain.
 - i. If the bowl is cracked then discard the bowl assembly.
6. Remove the screw retaining the white filter/separator.
7. Apply 1 drop of Loctite 222 to the last few threads on the screw.
8. Reinstall the screw. Ensure the filter/seperator is positioned correctly.
9. Hand-tighten the screw. Do not over tighten the screw as to distort the filter.
10. For the Compressor AF20: Reinstall a new clear bowl assembly.
 - a. Be very careful not to damage the O-Ring when installing.
11. For the Footswitch AF20: Reinstall the original clear bowl assembly unless it needed to be replaced. Then install a new assembly.
 - a. Be very careful not to damage the O-Ring when installing.
12. Reinstall the metal cages and hand-tighten.
13. Tighten the drain petcock on the bottom of the dryer as tight as possible by hand. You may need to wear a glove to provide the proper grip.

3.6.15 Footswitch

Inspection



Footswitch fittings and couplers.



Footswitch

1. Examine the black and clear tubing by the couplers that connect to the console for kinks. Follow repair instructions for any kinks.
2. Ensure that the black and clear tubing is pushed fully into the air fittings.
3. Ensure that the strain relief knob has been bottomed out. If not, tighten the nut all the way.

Footswitch Repair

Parts:

Part #	Description
N/A	N/A

Tools:

7mm Wrench
8mm Wrench
9mm Wrench
Razor Blade

1. If any kinks are found, cut and discard the tubing from the kinked section.
2. The distance from the end of the black and clear tubes to the beginning of the black jacketing should measure 1.25". Carefully cut and remove the necessary amount of the black jacketing using a razor blade.
3. Screw an Elbow and the Male Inlet Fitting (attached to the clear tube) together.
Ensure the gasket is on the elbow!
Torque to 25 in/lbs. Use a 7mm socket and 8mm wrench.
Do NOT set the fittings down without applying the proper torque.
Attach to the clear tube.
4. Screw an Elbow and the Female Outlet Fitting (attached to the black tube) together.
Ensure the gasket is on the elbow!
Torque to 23 in/lbs. Use a 8mm wrench and a modified 9mm crow foot on a CDI 1502MRMHSS torque wrench. The crow foot MUST stay inline with the wrench. This may be accomplished by "locking" the ratchet head. See next photo.
Do NOT set the fittings down without applying the proper torque.
Attach to the black tube, same end as the above step.



Ratchet Lock

Footswitch Replacement (Reference Appendix B)

Parts:

Qty	Part #	Description
1	SR6408-03	Footswitch Assembly, Non-MRI
1	SR6408-02	Footswitch Assembly, MRI

Tools:

N/A

1. Remove damaged footswitch by disconnecting connections to console.
2. Connect replacement footswitch to console.
 - i. SR6408-03 Non-MRI for ATEC *Pearl* console.
 - ii. SR6408-02 MRI for ATEC *Sapphire* and ATEC *Emerald* consoles.
3. Wrap tubing around cord management plate, counterclockwise, starting from the bottom.

3.6.16 Compressor and Vacuum Pump Mounts

Inspection



Example of a cracked mount.

1. Examine the compressor and vacuum pump mounts on the bottom of the base plate. These should be free from any cracks or rips.
2. Verify that all of the mounting hardware is in place for all 8 mounts.
 - a. There should be one screw through the center of the mount.
 - b. Two screws with lock washers and nuts securing each mount.
3. Repair any mounts that are cracked or have missing hardware.
4. If one mount for the compressor is cracked or ripped, then replace all 4 mounts.
 - a. If one mount for the vacuum pump is cracked or ripped, then replace all 4 mounts.
 - b. Use only the necessary sections, following instructions to replace any cracked mounts.

Mount Replacement

Parts: From SR6418-01 Mount Kit

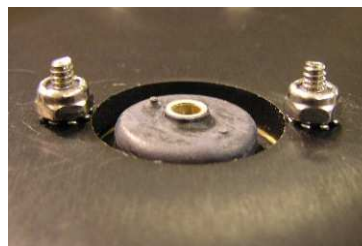
Qty	Part #	Description
4	SR6017-03	Mount, Isolation, Compressor
4	SR6017-04	Mount, Isolation, Vacuum Pump
8	SR6225-01	Washer, #8, Ext Tooth Lock, SS
8	SR6232-01	Nut, 8-32, Nylon Locknut, SS
8	SR6289-01	Nut, 6-32, Nylon Locknut, SS
8	SR6290-01	Washer, #6, Ext Tooth, SS
4	SR6291-01	Screw, 6-32, 5/8", BH, SH, SS
4	SR6292-01	Screw, 8-32 x 5/8", BH, SH, SS
5	SR6230-01	Cable Ties, 4", Nylon
1	SR6111-02	Muffler

Tools:

5/32" Allen Wrench
5/16" Allen Wrench
11/32" Socket
5/16" Socket
1/4" Socket
3/16" Hex bit
9/64" Hex bit
11/32" Wrench
Loctite
Side Cuts
Strap Wrench
Joint Compound



Vacuum Mount, top view.



Vacuum Mount, bottom view.



Comp. Mount, top view.



Comp. Mount, bottom view.

Removing the Compressor

1. Place a towel over the front edge of the front panel to protect the console.
2. Remove the 4 compressor screws with a 3/16" hex bit or Allen wrench.
3. Disconnect the brown wires from the capacitor.
4. Disconnect the black and white power wires (use needle nose pliers).
5. Disconnect the green grounding wire from the compressor with 1/4" socket.
6. Snip the cable tie by holding the green grounding wire to the black and white compressor power wires.
7. Remove the compressor assembly from the console.

Replacing the Compressor Muffler

1. Use a strap wrench to remove the compressor muffler.
2. Discard used muffler.
3. Apply a thin layer of HVAC Blue Compound onto the new Muffler NPT threads.
Ensure you remove all old sealant from NPT threads.
4. Hand-tighten into the middle port of the Brass Union "T".

Removing the Vacuum Pump

1. Remove the Compressor if not already removed.
2. Unscrew the nut on the front left leg of the vacuum pump with an 11/32" wrench.
3. Loosen and remove all 4 screws on the vacuum pump with a 9/64" hex bit.
4. Disconnect the black and white power cables (use needle nose pliers).
5. Snip cable ties by green grounding wire.
6. Remove the vacuum pump.

Replacing the Vacuum Pump Mounts

1. Remove the old 4 mounts with a 5/64" Allen wrench and 5/16" socket.
 - a. Discard old mounts.
2. Inset new mounts, with the long rubber part of the mount up.
 - a. Secure with 2 screws (SR6291-01) through each mount.
 - b. Secure each screw with an external tooth lock washer (SR6290-01) and a nut (SR6289-01) on the underside of the baseplate.
 - c. Torque to 24 in/lbs using a 5/64" Allen wrench and 5/16" socket.

Replacing the Compressor Mounts

1. Remove the mounts with a 5/32" Allen wrench and an 11/32" socket.
 - a. Discard old mounts.
2. Inset new mounts, with the long rubber part of the mount up.
 - a. Secure with 2 screws (SR6292-01) through each mount.
 - b. Secure each screw with an external tooth lock washer (SR6225-01) and a nut (SR6232-01) on the underside of the baseplate.
 - c. Torque to 30 in/lbs using a 5/32" Allen wrench and an 11/32" socket.

Reinstalling the Vacuum Pump

1. Install the vacuum pump assembly onto the vibration isolators in the back of the baseplate.
2. The muffler will be on the left side.
3. Secure with 3 screws (SR6257-01) and 1 long screw (SR6214-01), 4 Lord snubbing washers (SR6202-01), 4 (SR6180-01) snubbing washers, and 4 lock washers (SR6234-01).
 - a. The long screw (SR6214-01) secures the vacuum pump leg on your left and at the front.
 - b. Liberally apply Cement Adhesive (SR6294-01) to first 4-5 threads of all screws.
4. Insert 1 (SR6202-01) Lord Snubbing Washer between the top of each mount and the vacuum pump.
5. Insert 1 (SR6180-01) Snubbing Washer between the lock washer and the bottom of each mount.

6. Feed the screw up from the bottom.
7. Torque to 25 in/lbs with 9/64" hex bit.
8. Install the vacuum pump grounding wire short (SR6122-03) over the long screw between 2 external tooth washers (SR6225-01).
9. Secure with a nut (SR6223-01). Apply a small drop of cement adhesive (SR6294-01) to the screw before installing the nut.
10. Hand-tighten with 11/32" wrench. You may need to prevent the screw from loosening while tightening the nut.
11. Connect the Vacuum Pump wires to "Switch to 3AC" cables.
12. Route ground wire to ground stud to be attached later.
13. Secure the orange vacuum pump wires to the ground line with one (SR6230-01) 4" Cable Tie, as close to the connector on the vacuum pump as possible.
14. Secure the bundle with an additional cable tie ~4" away from the connector.
15. Route bundle around the back of the capacitor.
16. Reinstall compressor.

Reinstalling the Compressor

1. Secure compressor grounding wire under lock washer on compressor's green screw.
 - a. Torque to 20 in/lbs w/ a 1/4" socket.
 - b. Route toward the other 4 wires coming out of the compressor.
2. Attach the brown wires to the capacitor, as required.
 - a. Use 2 terminals on the same side, lengthwise.
3. Install the compressor assembly onto vibration isolators on the front of the baseplate.
 - a. The muffler will be on the right side.
 - b. Ensure that the wires go behind the compressor and to the left side of the unit.
4. Connect the brown wires to the capacitor.
 - a. Use 2 terminals on the same side, lengthwise.
5. Secure the orange vacuum pump wires to the ground line with one (SR6230-01) 4" Cable Tie, as close to the connector on the vacuum pump as possible.
6. Secure the bundle with an additional cable tie ~4" away from the connector.
7. Route bundle around the back of the capacitor.
8. Connect the SR6081-02 power cables to the compressor.
 - a. Use two SR6230-01 4" tie wraps and secure the 4 pump power wires to the wires on the circuit breaker. Keep the wires together, but separate the white (neutral) from the black (hot).
9. Ensure the hot and neutral connectors are not touching each other, either end to end or on top.
 - a. **This step is being done to ensure the connectors DO NOT touch the sponges, base plate or circuit breaker.**
 - b. Secure the compressor ground line to the bundle so that the wire is not touching the baseplate.
10. Secure with 4 screws (SR6211-01), 8 snubbing washers (SR6115-01) and 4 lock washers (SR6235-01).
 - a. Liberally apply Cement Adhesive (SR6294-01) to the first 4-5 threads of each screw.

- b. Insert 1 snubbing washer between the lock washer and the bottom of each mount.
- c. Insert 1 snubbing washer between the top of each mount and the compressor.
11. Feed the screw up from the bottom.
12. Torque to 60 in/lbs or until the mount starts to rotate with a 3/16" hex bit.
13. Install a cable tie attaching the compressor grounding wire and the compressor black and white power wires together. Route the between the compressor and the pump.
14. Dress wires to prevent shorting or any type of damage.

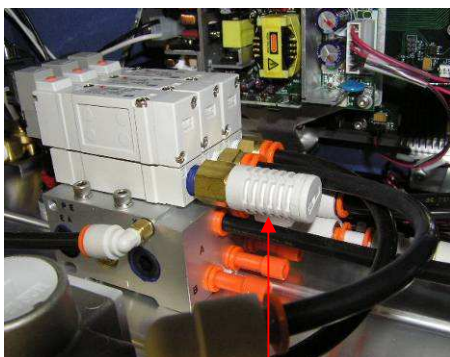
3.6.17 Silencer Replacement

Parts: From Preventative Maintenance Kit

Qty	Part #	Description
1	SR6325-01	Silencer

Tools:

N/A



Silencer

1. Carefully unscrew the silencer by hand and remove the silencer from the brass orifice. (May need to hold orifice)
2. Install the new orifice and tighten by hand.

3.6.18 Power Switch Replacement

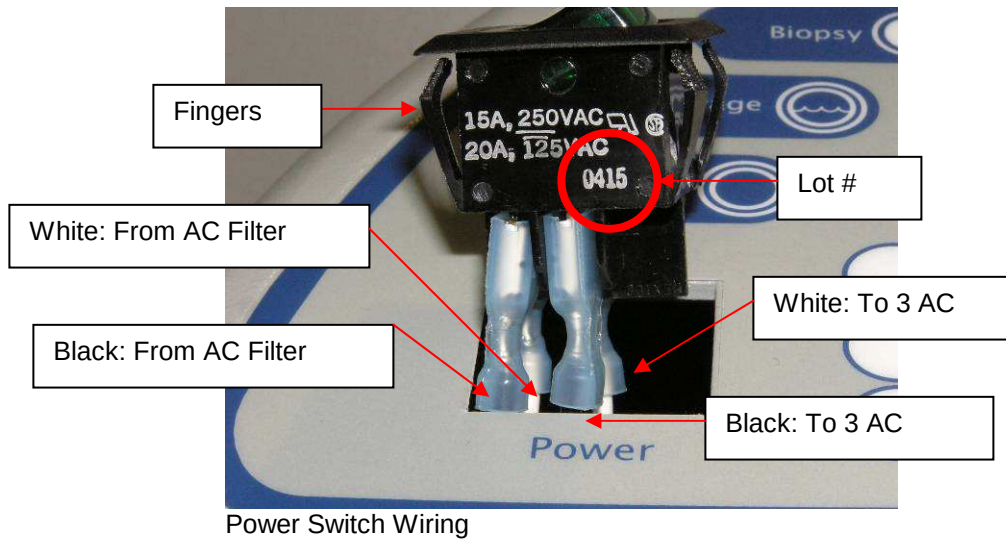
Power Switch Replacement

Parts:

Qty	Part #	Description
1	SR6071-01	AC Power Switch

Tools:

Needle Nose Pliers



1. Press in the fingers on both sides of the switch and push the switch out of the top panel slot.
 - a. Some switches have been glued into the top panel. Use any appropriate tools that will help loosen and remove the switch.
2. Remove the wires from the power switch. Needle Nose Pliers may be helpful.
3. Discard old switch.
4. Attach the leads to the power switch as shown in the figure.
5. Route over the AC Filter.
6. Snap the switch into the panel.
 - a. Re-glue if glued originally.
7. Verify that the switch light operates.

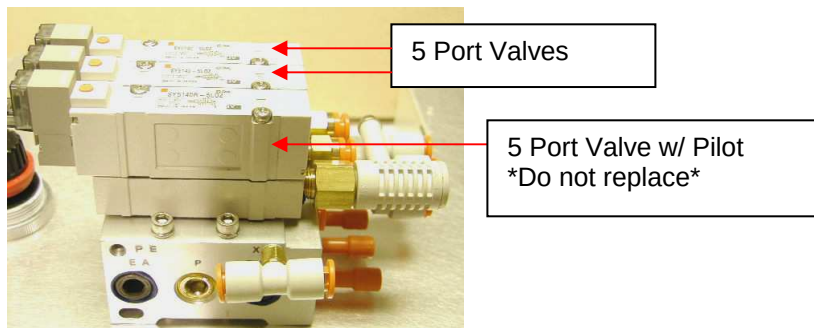
3.6.19 5 Port Valve Replacement

Parts:

Qty	Part #	Description
2	SR6018-01	Valve, 5 Port

Tools:

#2 Phillips bit
Torque Driver



Power Switch Wiring

1. Use a #2 Phillips bit to loosen the two screws holding in each valve.
2. Discard the old 5 Port Valves and the gaskets, but retain the screws.
3. Open the 5 Port Valve packs and discard the screws and washers, but retain the gasket.
4. Attach the gaskets to the underside of the valves.
5. Stack the 5 Port Valves and gaskets on top of the spacers in the same orientation as the 5 Port Valve with Pilot.
6. Attach with the same screws and washers.
7. Torque to 7 in/lbs.

3.6.20 Pneumatic Tubing

Inspection

1. Examine the pneumatic tubing to ensure that there are no leaks or kinks in the tubing.
2. Replace any kinked tubing with a new piece cut to the same length as stated in the appropriate procedure.

Tubing Replacement

Parts: From Preventative Maintenance Kit

Qty	Part #	Description
1	SR6028-01	Tubing, 1/4", Nylon
1	SR6230-01	Cable Tie, 4", Nylon

Tools:

Side Cuts
Tubing Cutter

1. Ensure tubing is cut perpendicular to the tubing and not at an angle.
2. Ensure tubing is fully inserted into the connector.
3. Replace any cable ties that were cut during replacement.

3.6.21 Electrical Wiring

Inspection

1. Examine the electrical wiring to ensure there are cuts or abrasions in the wiring.
2. Verify the wiring is not against the compressor or vacuum pump and that it is free from contact with compressor or vacuum pump mounts.

Wiring Repair

Parts: From Preventative Maintenance Kit

Qty	Part #	Description
1	SR6230-01	Cable Tie, 4", Nylon

Tools:

Side Cuts

1. If any wires are found to be in contact with the compressor, vacuum pump or sharp edges, use wire ties to secure wire away from hazard.
2. Use cable ties to secure wires.

3.9 Preventive Maintenance Check List

- ☐ Handpiece connections (3.8.1)
- ☐ Vacuum Line Bulkhead fitting (3.8.2)
- ☐ Pinch Valve (3.8.4)
- ☐ Saline/ Placard Hooks (3.8.5)
- ☐ Fans (3.8.6)
- ☐ Fan Guards (3.8.7)
- ☐ Base Trim Bumper (3.8.8)
- ☐ Power Cord and Cord Retainer Clamp (3.8.9)
- ☐ Caster Wheels (3.8.10)
- ☐ Door Lock and Door Lock Arm (3.8.11)
- ☐ Footswitch checked and tested (3.8.15)
- ☐ Compressor and Vacuum Pump Mounts (3.8.16)
- ☐ Replace muffler on compressor as needed
- ☐ Silencer on vacuum valve (3.8.17)
- ☐ A/C Power Switch (3.8.18)
- ☐ Check pneumatic tubing (3.8.20)
- ☐ Inspect electrical wiring (3.8.21)
- ☐ Replace both AF10 (3.8.13)
- ☐ Replace both AF20 filter and bowl (3.8.14)
- ☐ Replace both valves, 5 Port (3.8.19)
- ☐ Replace sponges (3.8.12)
- ☐ Check for major dents and scratches, to repaint

Record these values after performing the Preventive Maintenance.

- | | |
|---|-------|
| ☐ Air Motor Pressure non-MRI | _____ |
| ☐ Air Motor Pressure MRI | _____ |
| ☐ Cylinder Pressure | _____ |
| ☐ Pressure Switch Point | _____ |
| ☐ Vacuum Switch Point | _____ |
| ☐ Total Vacuum Draw Down | _____ |
| ☐ Cycle Time | _____ |

Signature _____

Date _____

Completed by:

Console S/N: _____

SECTION 4: GENERAL CHECKS and PREVENTIVE MAINTENANCE

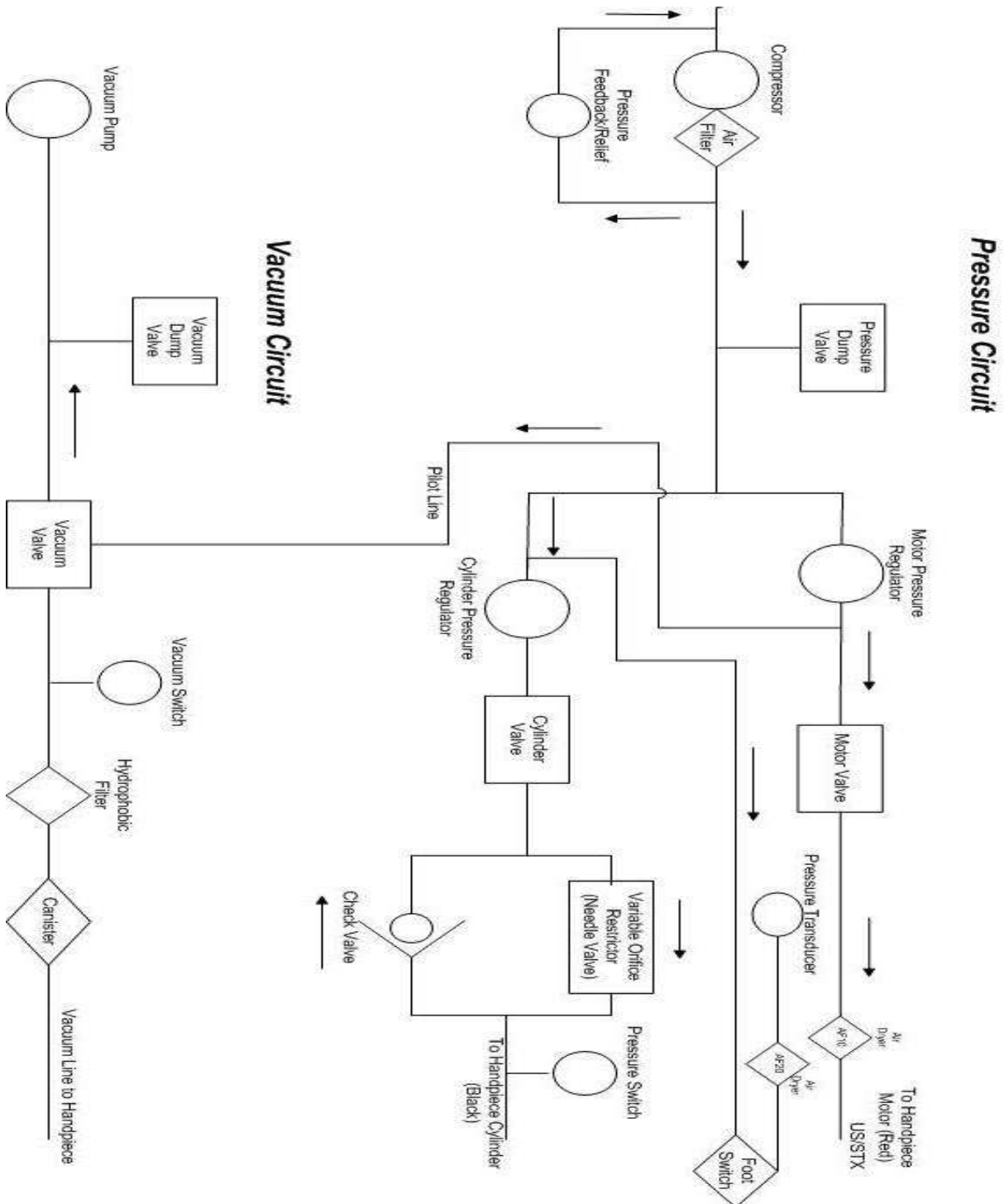
4.1 Replacement parts and repair kits

- a. SR6423-01 Power Cord w/ Cable Wrap, 120V
- b. SR6146-02 Vacuum Line Assembly
- c. ASY-02030 Bumper, Baseplate
- d. SR6408-03 Footswitch Assembly, Non-MRI
- e. SR6408-02 Footswitch Assembly, MRI
- f. ASY-02016 Union, Bulkhead, Black
- g. SR6067-01 Fan, 24V DC
- h. SR6003-01 Caster, Locking
- i. SR6018-01 Valve, 5 Port (Pressure)
- j. SR6071-01 AC Power Switch
- k. SR6418-01 Compressor/Vacuum Pump Mount Kit
- l. SR6416-01 Kit, ATEC *Sapphire*, Preventative Maintenance
- m. SR6415-01 Kit, ATEC *Pearl*, Preventative Maintenance
- n. SR6437-01 Kit, ATEC *Emerald*, Preventative Maintenance

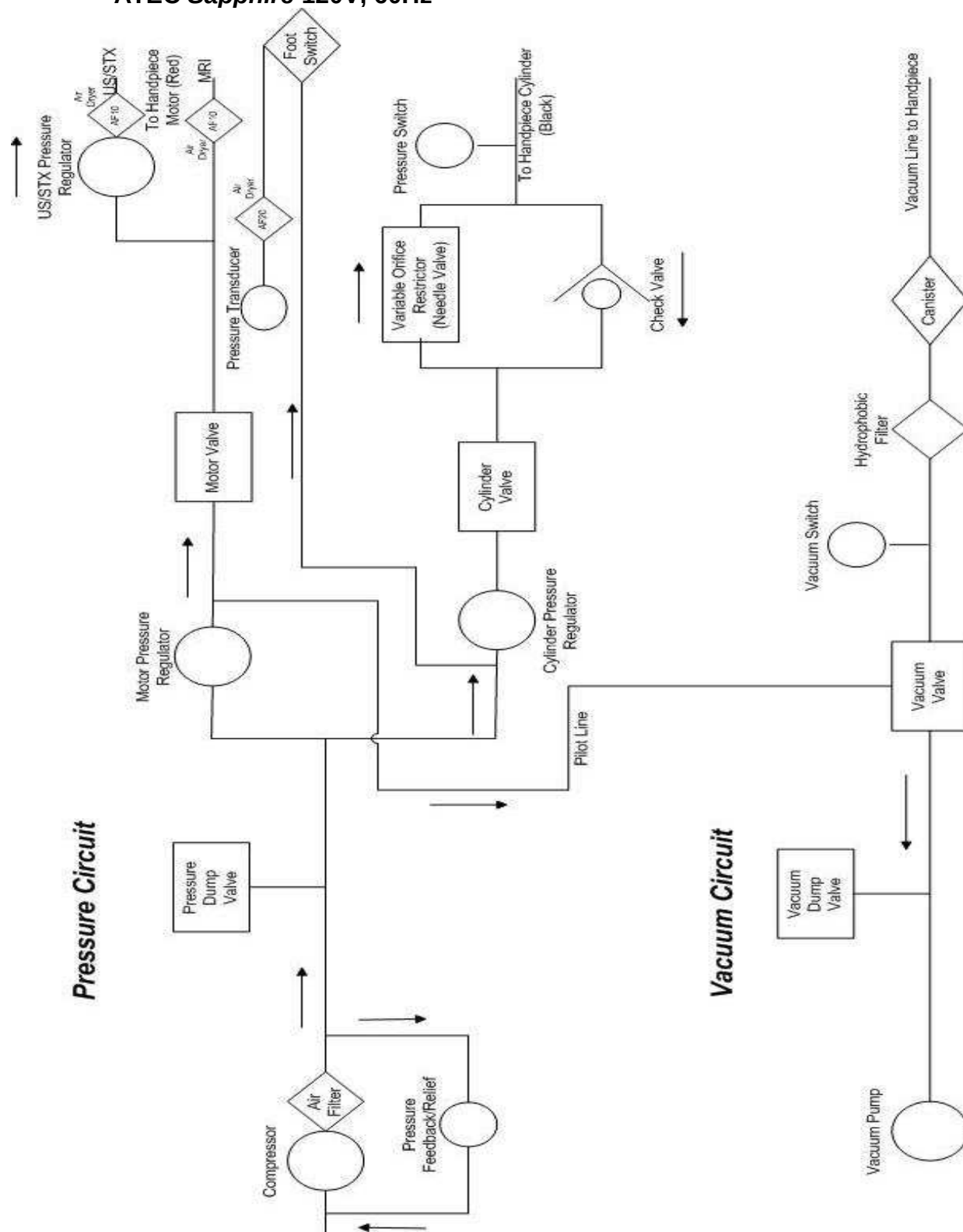
SECTION 5: SCHEMATICS

Pneumatic Schematics

ATEC Pearl 120V, 60Hz



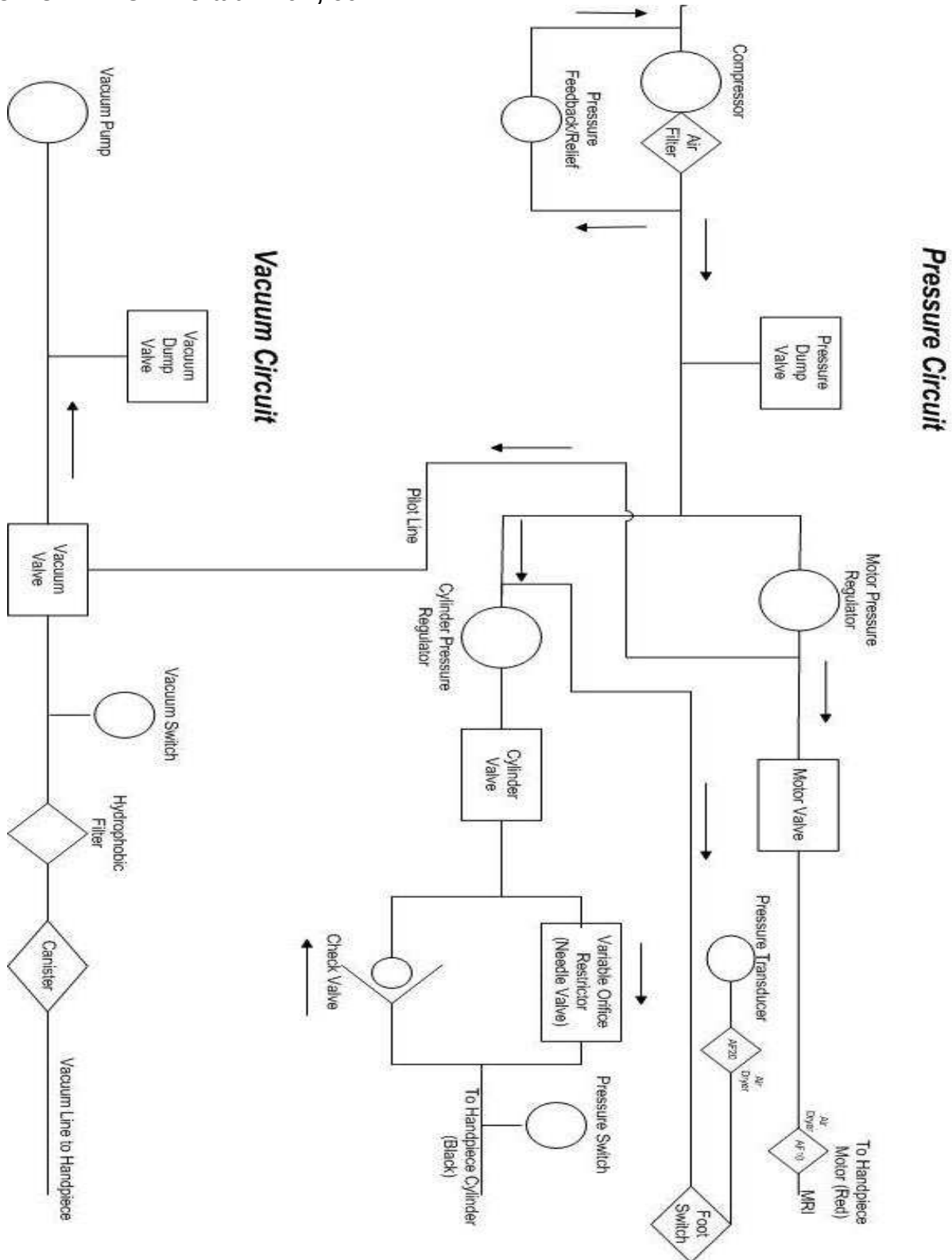
ATEC Sapphire 120V, 60Hz



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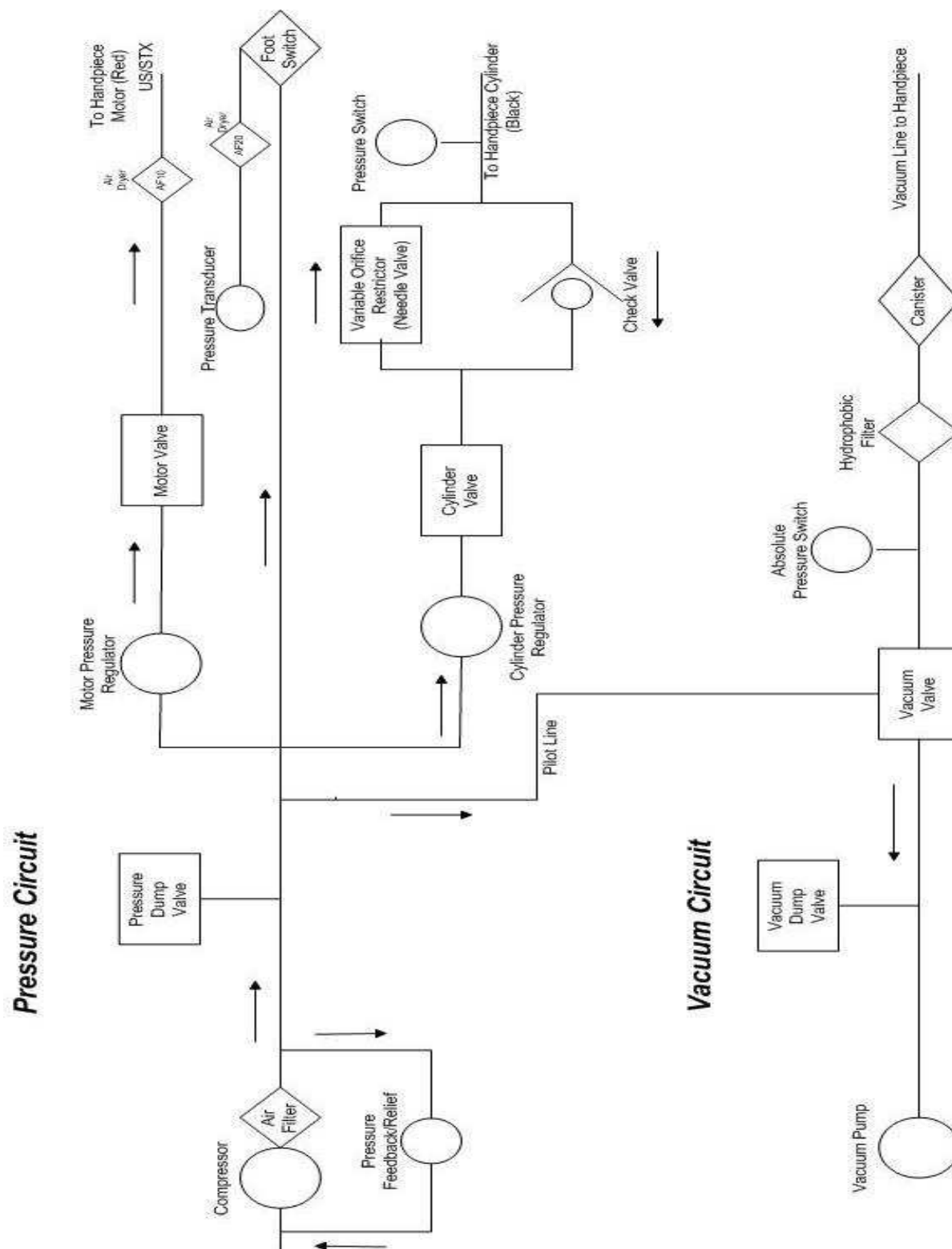
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5.1.3 ATEC Emerald 120V, 60Hz



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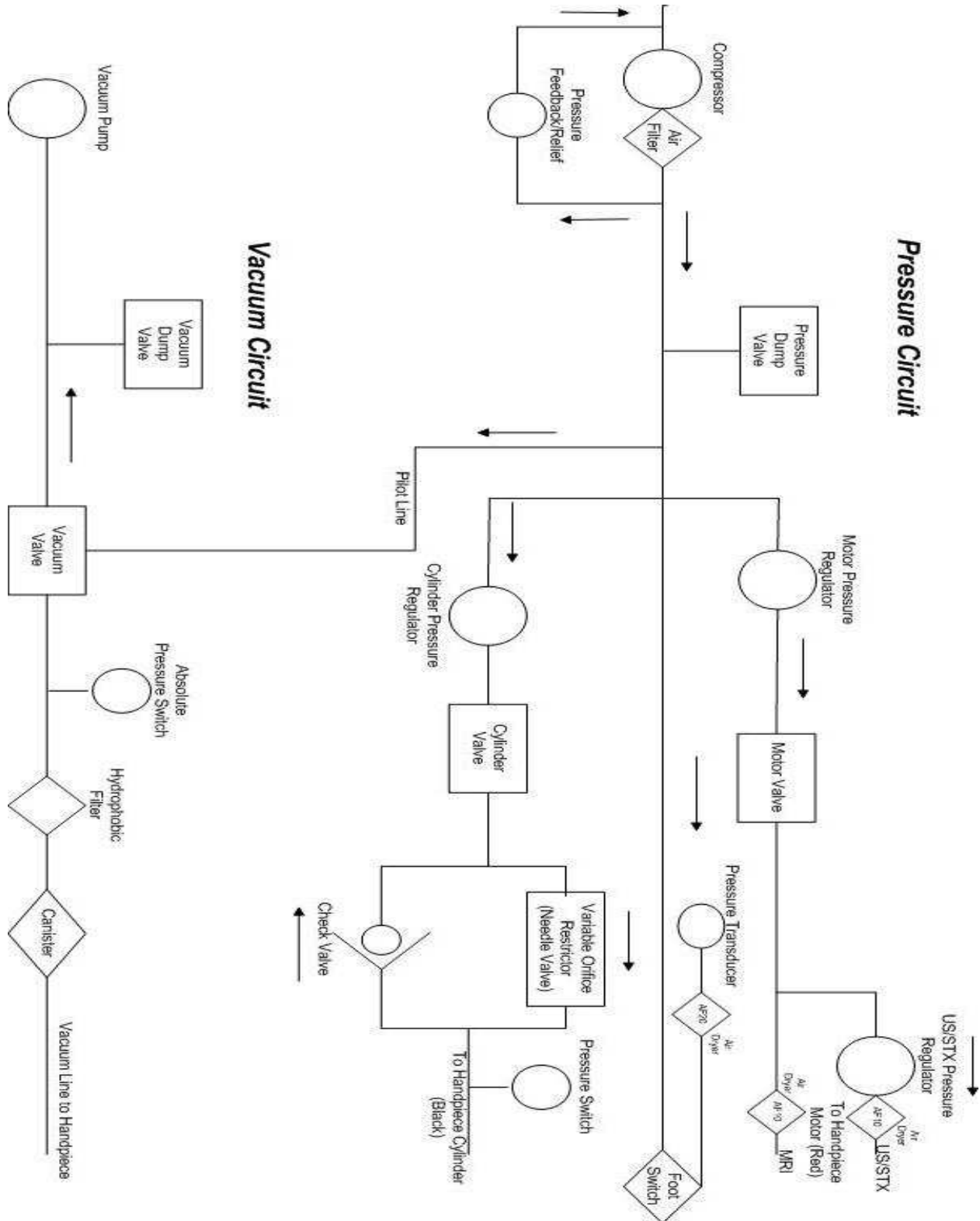
5.1.4 ATEC Pearl 240V, 50Hz



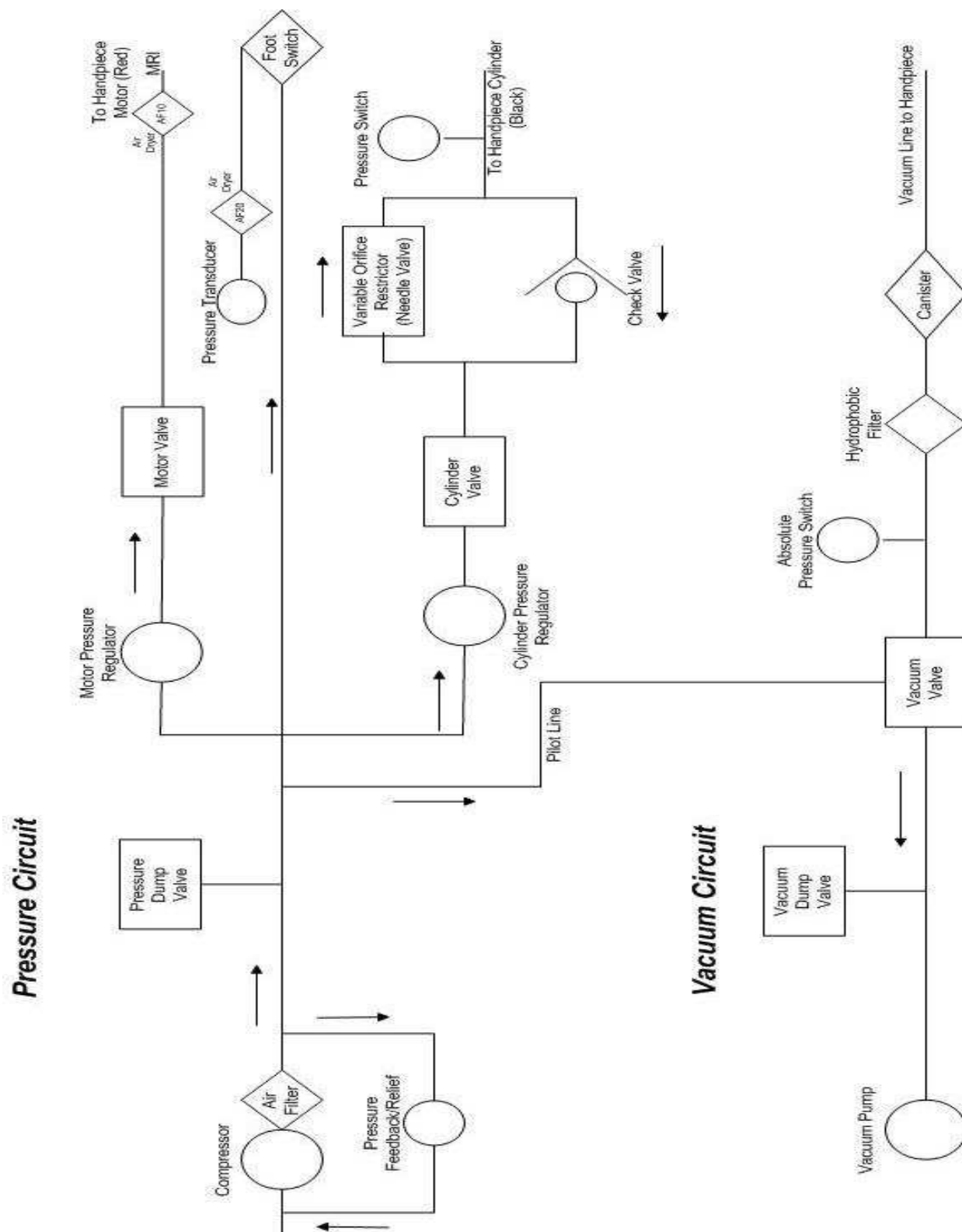
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5.1.5 ATEC Sapphire 240V, 50Hz

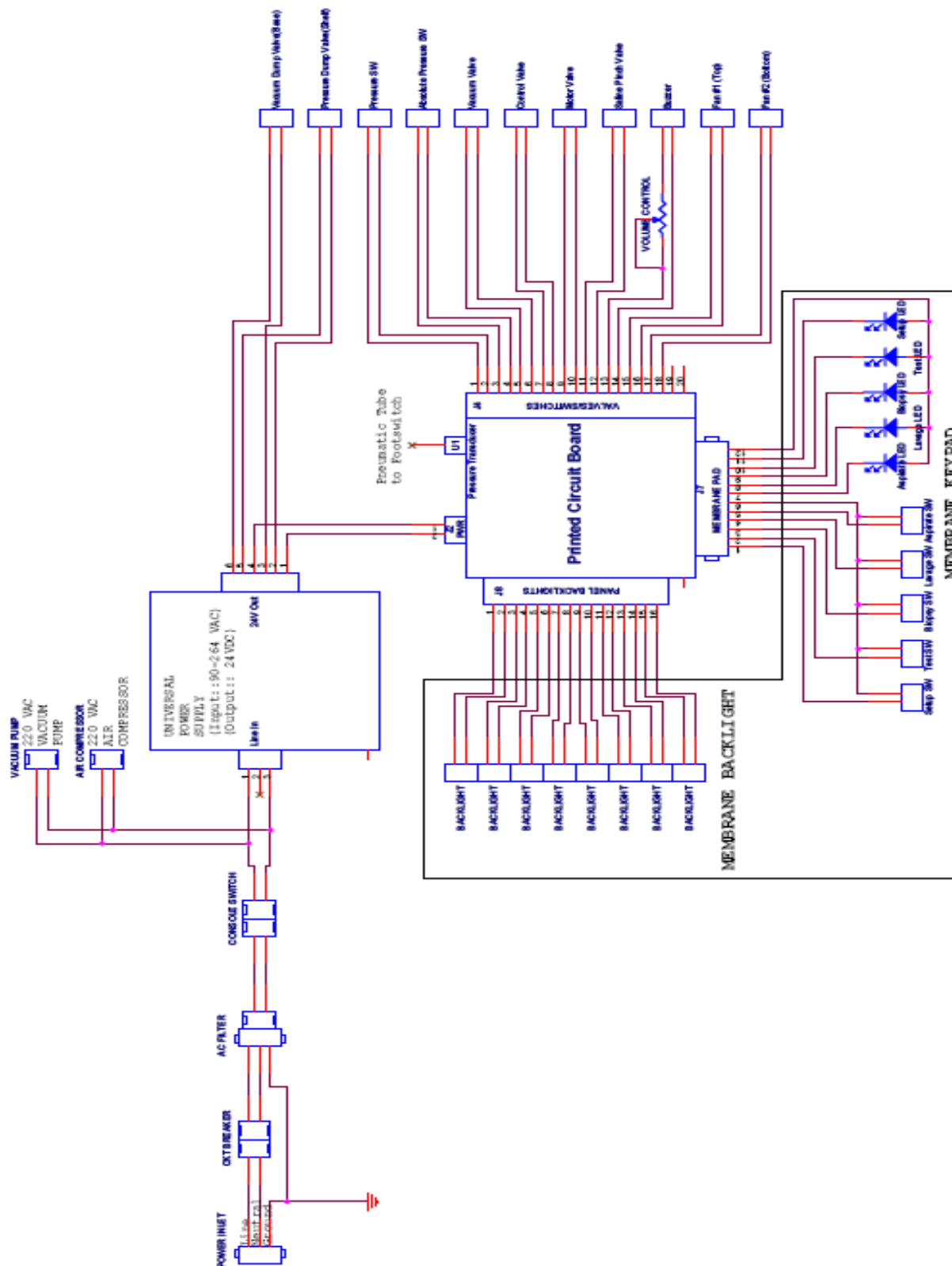


5.1.6 ATEC Emerald 240V, 50Hz



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All 240V, 50Hz Consoles



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APPENDIX: LITERATURE

The following pages are approved literature forms that inform the end user on how to replace the following items in the field:

- A. Vacuum Line Assembly Replacement**
- B. Footswitch Assembly Replacement**
- C. Power Cord Replacement**

A. Vacuum Line Assembly Replacement

Read carefully and utilize the check boxes to ensure all steps are performed. See figures below for assistance.

Removal (with the console powered off)

- 1) Locate white lock collar where the vacuum line assembly attaches to the console.
- 2) Lift up on the vacuum line assembly approximately one-eighth inch, exposing a gap between the white collar and black barb base.
- 3) Insert a small slotted screwdriver into the gap created, then press and hold down the white collar.
- 4) While holding down the white collar, pull the vacuum line assembly up and out of the vacuum line assembly connector.

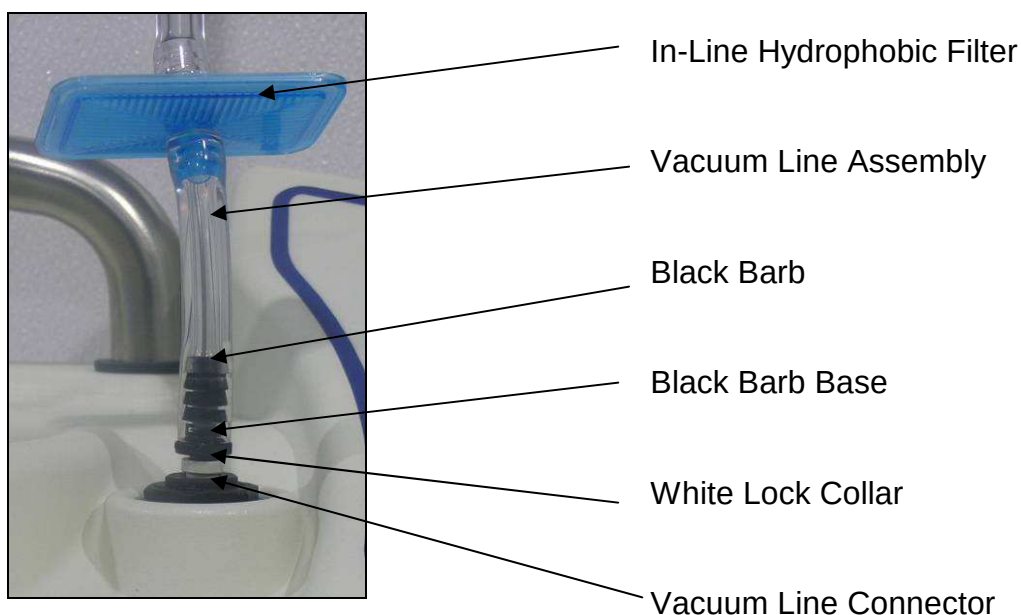
Installation (with the console powered off)

- 5) Press the new vacuum line assembly into the vacuum line assembly connector.
- 6) Pull up to verify it has locked into the connector. The vacuum line assembly will have small amount of vertical movement but should not pull free from connector.

Verification of Installation

- 7) Turn console power on.
- 8) An audible console beep will be heard; it will then default to the biopsy mode.
- 9) Plug the tip of the vacuum line assembly with thumb or finger.
- 10) Press the set-up button on the console.
- 11) Verify that the solid green vacuum ready light is illuminated, indicating that the system is functioning properly.

If you have questions or concerns with the removal, installation or verification of installation, please contact the Suros Customer Support Department at 1-877-88-SUROS (1-877-887-8767) for assistance.



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B. Footswitch Assembly Replacement

Read carefully and utilize the check boxes to ensure all steps are performed. See figures below for assistance.

Removal (with the console powered off)

- 1) Completely unwrap and remove footswitch cord from cord management plate.
- 2) Disconnect upper and lower footswitch connectors by pulling out the top lock collar and pushing in the bottom lock collar. Once disconnected, place footswitch in Suros box and return to Suros for evaluation.

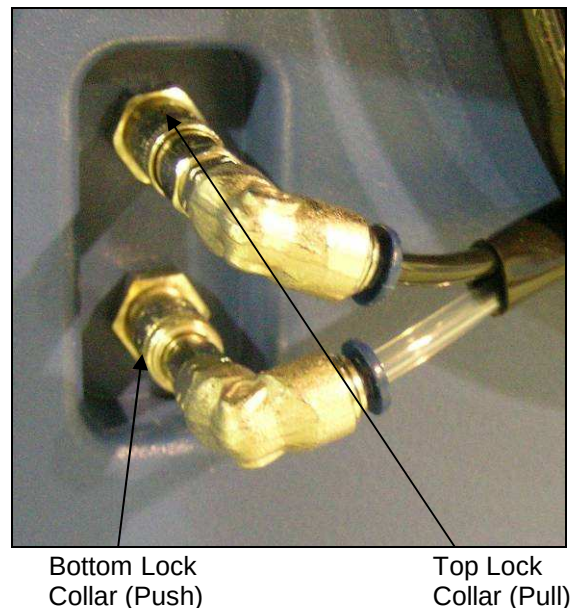
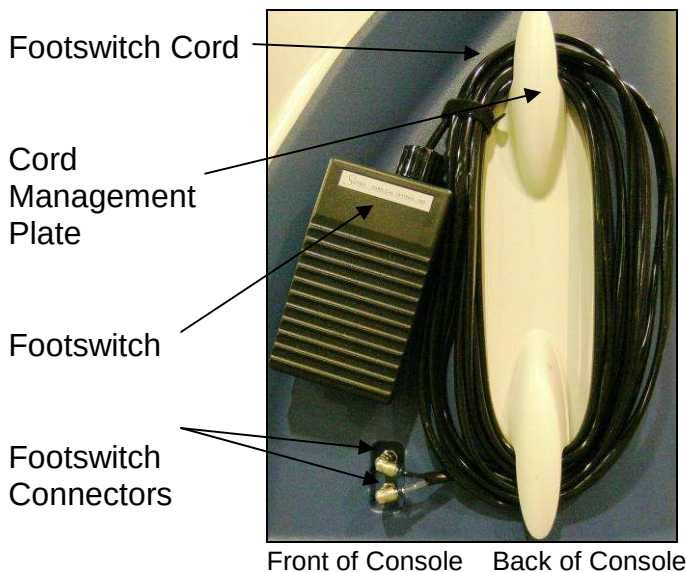
Installing New Footswitch Assembly (with the console powered off)

- 3) Connect footswitch connectors so that the connectors point toward the back of the console.
- 4) Wrap the footswitch counterclockwise around cord management plate.

Verification of Installation

- 5) Turn console power on.
- 6) An audible console beep will be heard; it will then default to the biopsy mode.
- 7) Plug the tip of the vacuum line assembly with thumb or finger.
- 8) Depress footswitch and hold until solid green vacuum ready light is acquired.
- 9) Check for solid green vacuum ready light, the console audible beep at the end of each cycle and cycling of the pinch valve.
- 10) Release footswitch pedal and verify that the solid green vacuum light turns off and cycling stops.

If you have questions or concerns with the removal, installation or verification of installation, please contact the Suros Customer Support Department at 1-877-887-8767 for assistance.



C. Power Cord Replacement

Read carefully and utilize the check boxes to ensure all steps are performed. See figures below for assistance.

Removal (with the console powered off)

- ☐ 1) Unplug console power cord from wall outlet.
- ☐ 2) Completely unwrap and remove power cord from cord management plate.
- ☐ 3) With #1 Philips screwdriver, loosen fastener on bottom of retaining bracket.
- ☐ 4) Disconnect power cord connector from power receptacle.

Installation (with the console powered off)

- ☐ 5) Firmly and completely insert power cord connector into power receptacle.
- ☐ 6) With #1 Philips screwdriver, tighten fastener on bottom of retaining bracket.

Verification of Installation

- ☐ 7) Plug power cord into wall outlet.
- ☐ 8) Turn console power on.
- ☐ 9) Verify console powers on, beeps and defaults to the biopsy mode.
- ☐ 10) Unplug power cord and wrap clockwise around cord management plate.

If you have questions or concerns with the removal, installation or verification of installation, please contact the Suros Customer Support Department at 1-877-887-8767 for assistance.

